Final Review #5 – Probability
Geometry

Name:_____
Date:_____ Per:_____

1. Answer the questions based on the following two-way table about 8th grade student's favorite social network.

	Tumblr	Facebook	Twitter	Instagram	Vine	None	Total
Male	1	4	7	22	11	16	61
Female	3	2	14	31	7	11	68
Total	4	6	21	53	18	27	129

a. a. If male was selected at random, what is the probability that his favorite social network is Instagram?

$P(\text{Instagram} \mid \text{male}) = \frac{22}{61}$

b. If a student was selected at random, what is the probability that his/her favorite social network is Twitter?

$P(\text{Twitter}) = \frac{21}{129} = \frac{7}{43}$

c. If a student who chose Tumblr was selected at random, what is the probability that this student is female?

$P(\text{Female} \mid \text{Tumblr}) = \frac{3}{4}$

d. Are the events "Male" and "Facebook" independent? Support your answer using appropriate probability calculations.

$P(\text{Facebook}) = \frac{6}{129}$ $P(\text{Male}) = \frac{61}{129}$

$P(\text{Facebook} \mid \text{Male}) = \frac{4}{61}$ $P(\text{Male} \mid \text{Facebook}) = \frac{4}{6}$

dependent

2. Answer the questions based on the following two-way table about 8th grade student's favorite member of One Direction.

	Niall	Harry	Liam	~~Harry~~ Zain	Louis	None	Total
Male	2	2	3	5	3	84	99
Female	13	15	4	15	6	45	98
Total	15	17	7	20	9	129	197

a. a. If male was selected at random, what is the probability that his favorite ~~social~~ band member is Louis?

$P(\text{Louis} \mid \text{Male}) = \frac{3}{99} = \frac{1}{33}$

b. If a student was selected at random, what is the probability that he/she likes any member of One Direction?

$P\left(\frac{197-129}{197}\right) = \frac{68}{197}$

c. If a male student is chosen, what is the probability that he likes Harry or Liam?

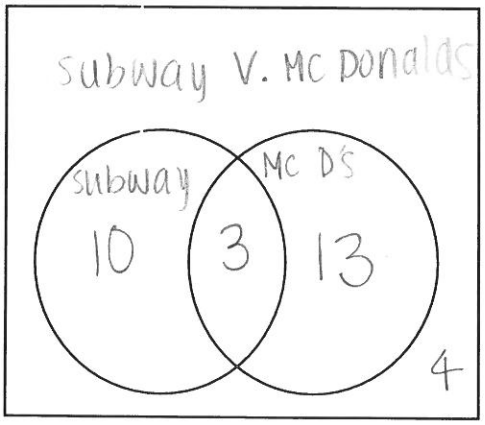
$P(\text{Harry} \cup \text{Liam} \mid \text{Male}) = \frac{8}{99}$ // $\frac{5}{99}$

d. Are the events "Male" and "favorite member is Niall" independent? Support your answer using appropriate probability calculations.

$P(\text{Male}) = \frac{99}{197}$ $P(\text{Niall}) = \frac{15}{197}$

$P(\text{Male} \mid \text{Niall}) = \frac{2}{15}$ $P(\text{Niall} \mid \text{Male}) = \frac{2}{99}$

5.



A group of students went to Florida. They visited a rest stop for lunch and had a choice of Subway or McDonald's. Ten students chose Subway, thirteen students chose McDonald's, and three bought both. Four students had nothing to eat. Find each probability:

a. P(~Subway ∩ ~McDonald's)

4/30 2/15

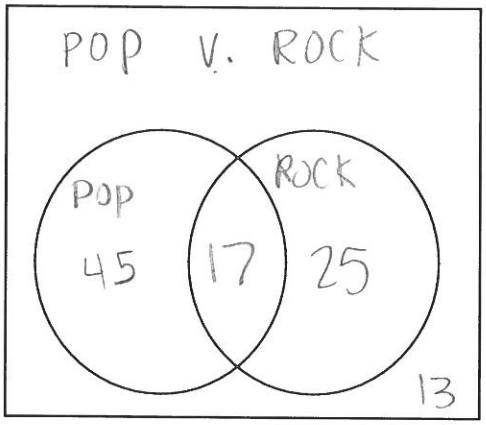
b. P(Subway ∪ McDonald's)

13/15

c. P(~McDonald's)

14/30 7/15

6.



The teacher took a survey of the whole 8th grade class. He wanted to know if people liked Pop or Rock or Other. He made a Venn Diagram to collect his data.

a. P(Pop ∪ Rock)

87/100

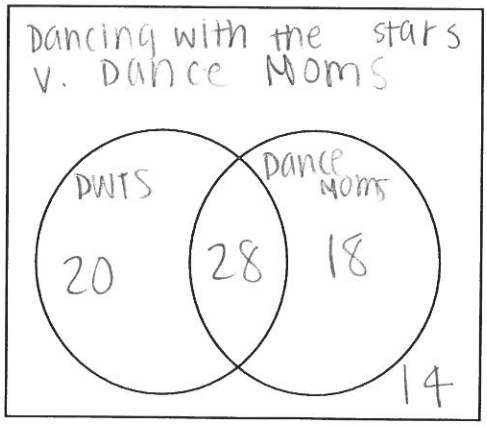
b. P(Rock ∩ ~Pop)

1/4

c. P(Pop ∪ ~Rock)

29/50 75/100 = 3/4

7.



An eighth grader surveyed her friends about which dance show they like. She found twenty people who like Dancing with the Stars (DWTS), eighteen people who like Dance Moms (DM), twenty-eight people who like both, and fourteen people who like neither.

a. P(DM ∩ DWTS) 7/20

b. P(DWTS ∪ DM)

33/40

c. P(~DWTS ∩ ~DM)

1/40